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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/628,357 | 07/29/2003 | Koichi Okawa | 240975US90 | 4490 |

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| EXAMINER | |
|---|---|
| BALAOING, ARIEL A | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2683 | |

DATE MAILED: 11/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/628,357 | OKAWA ET AL. | |
| | Examiner | Art Unit | |
| | Ariel Balaoing | 2683 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *03/21/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 09/06/2005 have been fully considered but they are not persuasive.

2. In response to applicant's arguments, the recitation "preferential connection to a first base station capable of directional beam" (see page 8, lines 9-10) has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). However, KARLSSON discloses that the base stations used in the disclosed invention can be of directional beam or non-directional beam (column 4:line 53-column 5:line 4) and the preferential connection to a first base station rather then a second base station (106-Figure 10; column 2:line 65-column 3:line 54; column 11:line 9--15).

Also, the applicant's argue that, "a predetermined threshold value assigned to each cell, as taught by KARLSSON, is not different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, so as to preferentially connect the mobile station to the base station rather then to the second base station"; the examiner respectfully disagrees. Handover thresholds, used for the preferential connection and disconnection

of the mobile to each base station, are set at different values. Therefore as broadly interpreted, KARLSSSON does indeed teach setting different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second base station, respectively, so as to preferentially connect the mobile station to the first base station rather than to the second base station (106-Figure 10, column 2:line 65-column 3:line 54; column 9:lines 23-33; column 9:lines 41-64; column 11:lines 9-35). Also, KARLSSON uses a signal strength threshold with a hysteresis value to determine handoff between base stations (column 8:lines 43-52; column 9:lines 41-64). The hysteresis is used as a threshold to prevent rapid oscillation of handoffs. The signal strength threshold and hysteresis value provide different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, so as to preferentially connect the mobile station to the first base station rather than to the second base station.

3. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 102***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-3, 8, 9, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by KARLSSON (US 5,499,386).

Regarding claim 1, KARLSSON discloses a method of connecting a mobile station with a base station via a radio link in a mobile communication system (column

2:line 65-column 3:line 5) including a first base station capable of directional beam signal transmission and reception [directional antenna] (column 4:line 53-column 5:line 4) and a second base station incapable of directional beam signal transmission and reception [omni-directional antenna] (column 4:line 53-column 5:line 4; the invention disclosed can be used with either directional antennas or omni-directional antennas), the method comprising: setting different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, so as to preferentially connect the mobile station to the first base station rather than to the second base station (106-Figure 10, column 2:line 65-column 3:line 54; column 9:lines 23-33; column 9:lines 41-64; column 11:lines 9-35). Also, KARLSSON uses a signal strength threshold with a hysteresis value to determine handoff between base stations (column 8:lines 43-52; column 9:lines 41-64). The hysteresis is used as a threshold to prevent rapid oscillation of handoffs. The signal strength threshold and hysteresis value provide different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, so as to preferentially connect the mobile station to the first base station rather than to the second base station.

Regarding claim 2, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the step of preferentially connecting the mobile station to the first base station includes: setting different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, when the mobile station

undergoes handover (column 3:lines 5-20, column 9:lines 23-33, column 9:lines 41-64, column 11:lines 9-35; base stations in the neighboring cells have differing preset handoff thresholds).

Regarding claim 3, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein preferentially connecting the mobile station to the first base station includes: setting different threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, when the mobile station is on standby and switches a connection destination thereof (column 3:lines 5-20, column 9:lines 34-64, column 11:lines 9-35; base stations in the neighboring cells have differing handoff thresholds).

Regarding claim 8, KARLSSON discloses a mobile station in a mobile communication system (abstract) including a first base station capable of directional beam signal transmission and reception [directional antenna] (column 4:line 53-column 5:line 4) and a second base station incapable of directional beam signal transmission and reception [omni-directional antenna] (column 4:line 53-column 5:line 4; the invention disclosed can be used with either directional antennas or omni-directional antennas), the mobile station comprising: a base station connection unit configured to set different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, so as to preferentially connect the mobile station to the first base station rather than to the second base station (106-Figure 10, column 2:line 65-column 3:line 54; column 9:lines

23-33; column 9:lines 41-64; column 11:lines 9-35). Also, KARLSSON uses a signal strength threshold with a hysteresis value to determine handoff between base stations (column 8:lines 43-52; column 9:lines 41-64). The hysteresis is used as a threshold to prevent rapid oscillation of handoffs. The signal strength threshold and hysteresis value provide different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, so as to preferentially connect the mobile station to the first base station rather than to the second base station.

Regarding claim 9, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the base station connection unit sets the different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, when the mobile station is on standby and switches a connection destination thereof (column 3:lines 5-20, column 9:lines 23-33, column 9:lines 41-64, column 11:lines 9-35; base stations in the neighboring cells have differing preset handoff thresholds).

Regarding claim 12, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses further comprising: a base station determination unit configured to identify and distinguish the first base station from the second base station (column 9:lines 41-64, column 11:lines 22-35; the mobile station tunes to a preferred neighbor when measured signal strength is above a

threshold. It is inherently necessary to include a way to distinguish between current base station and neighboring base station during handover).

Regarding claim 13, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses further comprising: a threshold value receiver configured to receive the threshold values (column 11:lines 50-61; threshold value of neighboring base stations are broadcast to the mobile for calculation).

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over KARLSSON (US 5,499,386) in view of PALENIUS et al (US 2002/0019231 A1).

Regarding claim 4, KARLSSON discloses a controller for controlling a radio link connection between a mobile station and a base station (column 4:lines 56-58, column 12:lines 17-34) in a mobile communication system including a first base station capable of directional beam signal transmission and reception [directional antenna] (column 4:line 53-column 5:line 4) and a second base station incapable of directional beam signal transmission and reception [omni-directional antenna] (column 4:line 53-column 5:line 4; the invention disclosed can be used with either directional antennas or omni-directional antennas), the controller comprising: a base station connection control unit configured to set different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second base station, respectively,

so as to preferentially connect the mobile station to the first base station rather than to the second base station (106-Figure 10, column 2:line 65-column 3:line 54; column 9:lines 23-33; column 9:lines 41-64; column 11:lines 9-35). Also, KARLSSON uses a signal strength threshold with a hysteresis value to determine handoff between base stations (column 8:lines 43-52; column 9:lines 41-64). The hysteresis is used as a threshold to prevent rapid oscillation of handoffs. The signal strength threshold and hysteresis value provide different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, so as to preferentially connect the mobile station to the first base station rather than to the second base station. However KARLSON does not disclose that the base station controller is a radio network controller. PALENIUS discloses that the base station controller is a radio network controller (paragraph 17). Therefore it would have been obvious to modify KARLSSON to include a radio network controller as both inventions teach a method and system for handover with defined thresholds in a cellular communication system. This is beneficial in that it would allow the ability to use the handover techniques described in a UMTS system. It is well know in the art that base stations using UMTS protocols must include a radio network controller.

Regarding claim 5, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the base station connection control unit sets the different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively (column 3:lines 5-20, column 9:lines 23-64, column 11:lines

9-35; base stations in the neighboring cells can have differing preset handoff thresholds).

8. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over KARLSSON (US 5,499,386) in view of PALENIUS et al (US 2002/0019231 A1) as applied to claim 5 above, and further in view of RAMAKRISHNA et al (US 6,233,455 B1).

Regarding claim 6, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the handover threshold value for connecting the mobile station with the first base station is larger than the handover threshold value for connecting the mobile station with the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher or lower then each other. This threshold is responsible for the connection and disconnection of the mobile between the two base stations). However the combination of KARLSSON and PALENIUS does not disclose wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station. RAMAKRISHNA discloses wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify the combination of KARLSSON and PALENIUS to adjust the threshold values to be defined as an absolute value of a

difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of measured signal power to determine weather handoff should occur.

Regarding claim 7, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the handover threshold value for disconnecting the mobile station with the first base station is larger than the handover threshold value for disconnecting the mobile station with the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher or lower then each other. This threshold is responsible for the connection and disconnection of the mobile between the two base stations). However the combination of KARLSSON and PALENIUS does not disclose wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station. RAMAKRISHNA discloses wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify the combination of KARLSSON and PALENIUS to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with

improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of real time measured signal power to determine weather handoff should occur.

9. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over KARLSSON (US 5,499,386) in view of RAMAKRISHNA et al (US 6,233,455 B1).

Regarding claim 10, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the threshold value for switching to the first base station is smaller than the threshold value for switching to the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher or lower then each other). However, KARLSSON does not discloses wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station. RAMAKRISHNA et al discloses wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify KARLSSON to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of measured signal power to determine weather handoff should occur.

Regarding claim 11, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the threshold value for switching to the first base station is larger than the threshold value for switching to the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher or lower then the other). However, KARLSSON does not discloses wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station. RAMAKRISHNA et al discloses wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify KARLSSON to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of measured signal power to determine weather handoff should occur.

***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ariel Balaoing whose telephone number is (571) 272-7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 AM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571) 272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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AB

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